```
=> file medline caplus embase biotechds biosis scisearch
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                 ENTRY    SESSION
FULL ESTIMATED COST                               0.21       0.21

FILE 'MEDLINE' ENTERED AT 13:56:35 ON 21 NOV 2002

FILE 'CAPLUS' ENTERED AT 13:56:35 ON 21 NOV 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'EMBASE' ENTERED AT 13:56:35 ON 21 NOV 2002
COPYRIGHT (C) 2002 Elsevier Science B.V.  All rights reserved.

FILE 'BIOTECHDS' ENTERED AT 13:56:35 ON 21 NOV 2002
COPYRIGHT (C) 2002 THOMSON DERWENT AND INSTITUTE FOR SCIENTIFIC INFORMATION

FILE 'BIOSIS' ENTERED AT 13:56:35 ON 21 NOV 2002
COPYRIGHT (C) 2002 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'SCISEARCH' ENTERED AT 13:56:35 ON 21 NOV 2002
COPYRIGHT (C) 2002 Institute for Scientific Information (ISI) (R)

=> s dna probe and expansin activity
L1            0 DNA PROBE AND EXPANSIN ACTIVITY

=> s dna probe and expansin
L2            0 DNA PROBE AND EXPANSIN

=> s dna and probe and expansin
L3            1 DNA AND PROBE AND EXPANSIN

=> d l3 ibib ab

L3   ANSWER 1 OF 1  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER:   2001:277733  BIOSIS
DOCUMENT NUMBER:    PREV200100277733
TITLE:              Differential RNA expression of alpha-expansin
                    gene family members in the parasitic angiosperm Triphysaria
                    versicolor (Scrophulariaceae.
AUTHOR(S):          Wrobel, Russell L.; Yoder, John I. (1)
CORPORATE SOURCE:   (1) Department of Vegetable Crops, University of
                    California, Davis, 1 Shields Ave., Davis, CA, 95616:
                    jiyoder@ucdavis.edu USA
SOURCE:             Gene (Amsterdam), (21 March, 2001) Vol. 266, No. 1-2, pp.
                    85-93. print.
                    ISSN: 0378-1119.
DOCUMENT TYPE:      Article
LANGUAGE:           English
SUMMARY LANGUAGE:   English
AB   Haustoria are parasitic plant specific organs that locate, attach to, and
     invade host plant tissues. Parasitic species of the Scrophulariaceae
     develop haustoria on their roots in response to chemical signals released
     by host plant roots. Haustorium development was induced in vitro in roots
     of the parasitic Scrophulariaceae Triphysaria versicolor by treating them
     with exudates obtained from maize roots, the chemical 2,6-
     dimethoxybenzoquinone (DMBQ) or the cytokinin 6-benzylaminopurine (BAP).
     Morphological responses of T. versicolor roots to these haustoria inducing
     factors (HIFs) included localized swelling and epidermal hair
     proliferation near the root tips. These responses were not observed when
     roots of the non-parasitic Scrophulariaceae Lindenbergia muraria were
     similarly treated. Because expansin proteins are closely
```

associated with plant cell wall expansion and growth, we examined the expression of **expansin** genes in response to HIFs. We isolated cDNAs homologous to transcripts encoding three distinct alpha-**expansin** proteins in T. versicolor. Northern-blot analyses indicated that these transcripts were differentially abundant in different tissues. Steady-state levels of two **expansin** transcripts increased in T. versicolor roots exposed to BAP, but not DMBQ or maize root exudates. **Expansin** transcript abundance also increased in L. muraria in response to BAP treatment. These results suggest that the expansins examined fulfill functions distinct from haustorium development.

```
=> s expansin protein and dna
L4            4 EXPANSIN PROTEIN AND DNA

=> dup rem l4
PROCESSING COMPLETED FOR L4
L5            4 DUP REM L4 (0 DUPLICATES REMOVED)

=> s l5 and probe
L6            0 L5 AND PROBE

=> d l5 1-4 ibib ab

L5   ANSWER 1 OF 4  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:         2002:754532  CAPLUS
DOCUMENT NUMBER:          137:274419
TITLE:                    Protein and cDNA sequences of .beta.-expansin
                          protein isolated from maize and
                          polynucleotides and methods of uses thereof
INVENTOR(S):              Multani, Dilbag S.; Johal, Gurmukh S.
PATENT ASSIGNEE(S):       Pioneer Hi-Bred International, Inc., USA
SOURCE:                   PCT Int. Appl., 65 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.        KIND  DATE          APPLICATION NO.  DATE
     ---------------   ----  --------      ---------------  --------
     WO 2002077170      A2   20021003      WO 2002-US8603   20020320
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
             HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
             LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
             RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,
             VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
             CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
             BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.:                  US 2001-277847P  P  20010322
                                        US 2001-324182P  P  20010921
AB   The present invention provides protein and cDNA sequences of .beta.-
     expansin protein isolated from maize and methods for
     modulating plant cell enlargement, plant strength, plant pliability and
     flexibility. Specifically, the invention discloses that the sequence can
     be used in expression cassettes for modulating plant cell enlargement,
     stalk strength, plant pliability and flexibility. Transformed plants,
     plant cells, tissues, and seed are also provided. Methods for rapidly
     identifying and isolating a Mu-tagged recessive gene mutation in a F1
     generation plant, and identification and isolation of its assocd.
     wild-type gene are also provided.
```

L5 ANSWER 2 OF 4 MEDLINE
ACCESSION NUMBER: 2001406338 MEDLINE
DOCUMENT NUMBER: 21351003 PubMed ID: 11457903
TITLE: Expression of six expansin genes in relation to extension activity in developing strawberry fruit.
AUTHOR: Harrison E P; McQueen-Mason S J; Manning K
CORPORATE SOURCE: Horticulture Research International, Wellesbourne, Warwick CV35 9EF, UK.. elizabeth.harrison@hri.ac.uk
SOURCE: JOURNAL OF EXPERIMENTAL BOTANY, (2001 Jul) 52 (360) 1437-46.
Journal code: 9882906. ISSN: 0022-0957.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF226700; GENBANK-AF226701; GENBANK-AF226702; GENBANK-AF226703; GENBANK-AF226704
ENTRY MONTH: 200110
ENTRY DATE: Entered STN: 20011008
Last Updated on STN: 20011008
Entered Medline: 20011004

AB Expansins are proteins which have been demonstrated to induce cell wall extension in vitro. The identification and characterization of six expansin cDNAs from strawberry fruit, termed FaExp3 to FaExp7, as well as the previously identified FaExp2 is reported here. Analysis of expansin mRNAs during fruit development and in leaves, roots and stolons revealed a unique pattern of expression for each cDNA. FaExp3 mRNA was present at much lower levels than the other expansin mRNAs and was expressed in small green fruit and in ripe fruit. FaExp4 mRNA was present throughout fruit development, but was more strongly expressed during ripening. FaExp5 was the only clone to show fruit specific expression which was up-regulated at the onset of ripening. FaExp6 and FaExp7 mRNAs were present at low levels in the fruit with highest expression in stolon tissue. During fruit development FaExp6 had the highest expression at the white, turning and orange stages whereas expression of FaExp7 was highest in white fruit. The expression profiles of FaExp2 and FaExp5 in developing fruit were similar except that FaExp2 was induced at an earlier stage. Analysis of **expansin protein** by Western blotting using an antibody raised against CsExp1 from cucumber hypocotyls identified two bands of 29 and 31 kDa from developing fruit. Protein extracts from developing fruit were assayed for extension activity. Considerable rates of extension were observed with extracts from ripening fruit, but no extension was observed with protein from unripe green fruit. These results demonstrate the presence of at least six expansin genes in strawberry fruit and that during ripening the fruit acquires the ability to cause extension in vitro, characteristic of expansin action.

L5 ANSWER 3 OF 4 MEDLINE
ACCESSION NUMBER: 1998393519 MEDLINE
DOCUMENT NUMBER: 98393519 PubMed ID: 9724690
TITLE: Localized upregulation of a new expansin gene predicts the site of leaf formation in the tomato meristem.
AUTHOR: Reinhardt D; Wittwer F; Mandel T; Kuhlemeier C
CORPORATE SOURCE: Institute of Plant Physiology, University of Berne, Altenbergrain 21, CH-3013 Berne, Switzerland.
SOURCE: PLANT CELL, (1998 Sep) 10 (9) 1427-37.
Journal code: 9208688. ISSN: 1040-4651.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199811

ENTRY DATE: Entered STN: 19990106
Last Updated on STN: 19990106
Entered Medline: 19981118

AB Expansins are extracellular proteins that increase plant cell wall extensibility in vitro and are thought to be involved in cell expansion. We showed in a previous study that administration of an exogenous **expansin protein** can trigger the initiation of leaflike structures on the shoot apical meristem of tomato. Here, we studied the expression patterns of two tomato expansin genes, LeExp2 and LeExp18. LeExp2 is preferentially expressed in expanding tissues, whereas LeExp18 is expressed preferentially in tissues with meristematic activity. In situ hybridization experiments showed that LeExp18 expression is elevated in a group of cells, called I1, which is the site of incipient leaf primordium initiation. Thus, LeExp18 expression is a molecular marker for leaf initiation, predicting the site of primordium formation at a time before histological changes can be detected. We propose a model for the regulation of phyllotaxis that postulates a crucial role for expansin in leaf primordium initiation.

L5 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:34082 CAPLUS
DOCUMENT NUMBER: 126:56632
TITLE: Purified expansin proteins and their effects on cellulose paper
INVENTOR(S): Cosgrove, Daniel J.; Mcqueen-Mason, Simon; Guiltinan, Mark; Shcherban, Tatyana; Shi, Jun
PATENT ASSIGNEE(S): Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 92 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9635442	A1	19961114	WO 1996-US6759	19960513
W: CA, JP, KR				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5959082	A	19990928	US 1995-440517	19950512

PRIORITY APPLN. INFO.:
US 1995-440517 A 19950512
US 1993-60944 B2 19930512
US 1994-242090 B2 19940512

AB The present invention relates to a new class of proteins, known as expansins, and their isolation, sequencing, genesis by expression systems, and utilization. Thus, the walls of growing cucumber seedlings possess extractable proteins which can induce extension of isolated walls. The names expansin-29 and expansin-30 were proposed for the 2 specific members of this class, based on their relative mol. masses on SDS-PAGE. Three peptide fragments from the purified cucumber Ex-29 protein were sequenced, oligonucleotide primers designed to amplify a portion of the expansin cDNA using PCR, and the PCR fragment used to screen a cDNA library to identify full-length clones. Expansin proteins were also purified from oat and from snail (Helix aspersa) feces. Cucumber expansins appear to assoc. with the cellulose fraction of the cell wall; they do not exhibit polysaccharide hydrolysis under a variety of assay condition and they do not cause a progressive weakening of the wall. Expansins also appear to disrupt hydrogen bonds as particularly noted with cellulose paper. These proteins have been identified in a wide variety of plant and other materials and have a variety of applications, including but not limited to agricultural and/or food applications and industrial uses such as their use in the paper industry as a catalyst for weakening the strength of paper products useful in the recycling of paper.

```
=> d his

     (FILE 'HOME' ENTERED AT 13:55:57 ON 21 NOV 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOTECHDS, BIOSIS, SCISEARCH' ENTERED AT
     13:56:35 ON 21 NOV 2002
L1             0 S DNA PROBE AND EXPANSIN ACTIVITY
L2             0 S DNA PROBE AND EXPANSIN
L3             1 S DNA AND PROBE AND EXPANSIN
L4             4 S EXPANSIN PROTEIN AND DNA
L5             4 DUP REM L4 (0 DUPLICATES REMOVED)
L6             0 S L5 AND PROBE

=>  log y
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    37.00      37.21

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                    -1.24      -1.24

STN INTERNATIONAL LOGOFF AT 14:02:53 ON 21 NOV 2002
```

WEST Search History

DATE: Thursday, November 21, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L5	3966543	14	L5
L4	3844890	21	L4
L3	4004976	6	L3
L2	5175275	7	L2
L1	5990182	1	L1

END OF SEARCH HISTORY